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UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO DIVISION

22 **IN RE GOOGLE PLAY CONSUMER  
23 ANTITRUST LITIGATION**

24 THIS DOCUMENT RELATES TO:

25 *In Re Google Play Consumer Antitrust  
26 Litigation*, Case No. 3:20-CV-05761-JD

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Case No. 3:21-md-02981-JD

**PUBLIC-REDACTED VERSION**

**DEFENDANTS' NOTICE OF MOTION AND  
MOTION TO EXCLUDE TESTIMONY OF DR.  
HAL J. SINGER ON CLASS CERTIFICATION;  
MEMORANDUM OF POINTS AND  
AUTHORITIES IN SUPPORT THEREOF**

Date: August 4, 2022  
Time: 10:00 a.m.  
Judge: Hon. James Donato  
Courtroom: 11, 19th Floor, 450 Golden Gate Ave,  
San Francisco, California 94102

Case No. 3:20-CV-05761-JD

## **NOTICE OF MOTION**

**TO ALL PARTIES AND THEIR COUNSEL OF RECORD:**

3           **PLEASE TAKE NOTICE THAT** on August 4, 2022 at 10:00 a.m., or as soon thereafter  
4 as the matter may be heard, in Courtroom 11, 19th Floor, 450 Golden Gate Avenue, San  
5 Francisco, California, 94102, before the Honorable James Donato, the undersigned Defendants  
6 (“Defendants”), will and hereby do move the Court for an order excluding the testimony of  
7 Consumer Plaintiffs’ proffered expert Dr. Hal J. Singer, on the ground that it is not admissible  
8 under Federal Rule of Evidence 702. This motion is based upon this Notice of Motion, the  
9 attached Memorandum of Points and Authorities, the concurrently-filed declaration of Justin P.  
10 Raphael, and the exhibits to that declaration, the concurrently-filed Proposed Order, the pleadings  
11 and records on file in this action, and upon any additional evidence and argument that may be  
12 presented before or at the hearing of this motion.

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## **ISSUE TO BE DECIDED**

2 Whether the Court should exclude the expert opinions of the Consumer Plaintiffs' expert  
3 Dr. Hal J. Singer as unreliable under Rule 702 of the Federal Rules of Evidence and *Daubert v.*  
4 *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

## INTRODUCTION

6 Consumer Plaintiffs allege that developers passed on service fees for the Google Play Store  
7 by charging consumers higher prices for downloading apps, subscribing to apps, and buying  
8 digital content used in apps (“in-app purchases” or “IAPs”). Plaintiffs’ expert, Dr. Hal Singer, has  
9 proffered what he calls a “deceptively straightforward” model to prove this pass-through on a  
10 class-wide basis. Dr. Singer’s pass-through model is unreliable.

11 The putative class of millions of consumers in the United States downloaded many  
12 thousands of different kinds of apps from the Play Store. Ninety percent of the apps in the Play  
13 Store are completely free; consumers pay nothing to download them, subscribe to them, or buy  
14 IAPs in them. Consumer Plaintiffs' case involves the small fraction of apps for which developers  
15 charge consumers for a download, a subscription, or an IAP. Developers set the prices for those  
16 transactions, which are subject to service fees. Consumer Plaintiffs' theory of antitrust injury is  
17 that (1) Google unlawfully foreclosed competition for the Play Store, (2) absent this conduct,  
18 Google would have charged lower service fees, and (3) rather than investing these reduced fees in  
19 improving or marketing their apps, developers would have passed the reduced fees on by charging  
20 lower prices for apps, subscriptions, and IAPs.

Theories of antitrust impact that depend on pass-through are “more complex” because they  
“must account for the actions of innocent intermediaries who allegedly passed on the overcharge.”  
*In re Graphics Processing Units Antitrust Litig.*, 253 F.R.D. 478, 499 (N.D. Cal. 2008). Here, the  
“intermediaries” are thousands of developers of different apps with different marginal costs,  
competitors and business strategies. Dr. Singer has not run any regression or other econometric  
analysis to identify which of the developers would have reduced their prices if they were subject to  
lower service fees and by how much. In fact, Dr. Singer has not measured pass-through using any  
data regarding what developers actually did when Google reduced its service fees in the real

1 world. Rather, according to Dr. Singer, each app's pass-through rate can be calculated using a  
 2 simple ratio: the number of transactions involving that app divided by the total number of  
 3 transactions involving apps in the same category in the Play Store. All Dr. Singer does to  
 4 calculate the app's pass-through rate is to subtract that ratio from 100. Thus, if 1% of transactions  
 5 in the Weather category involve a particular app, Dr. Singer calculates that the developer of that  
 6 app would have passed on 99% of any service fee above the competitive level. That is it.

7 The Court should exclude Dr. Singer's opinions based on this bare bones formula. *First*,  
 8 the formula is not "a generally accepted method," *Milan v. Clif Bar & Co.*, No. 18-cv-02354-JD,  
 9 2021 WL 4427427, at \*6 (N.D. Cal. Sept. 27, 2021) (Donato, J.), because it departs from what Dr.  
 10 Singer himself identifies as standard economics in his own reports. Google's service fees are  
 11 calculated as a percentage of the prices that developers charge. According to the economic model  
 12 that Dr. Singer describes as "generally accepted" and included in his report, whether an increase in  
 13 such costs affect prices (if at all) depends on a firm's other marginal costs. Dr. Singer concededly  
 14 did not use this accepted model because he could not possibly determine the marginal costs of  
 15 each of the thousands of developers that transacted with the putative consumer class. Instead, Dr.  
 16 Singer used a formula based on an app's category share, which he conceded "doesn't actually  
 17 depend on what the marginal cost of the developer is." Ex.<sup>1</sup> 1, Singer Dep. at 91:3–8. A pricing  
 18 model that does not depend on costs does not reflect standard economics. Dr. Singer also testified  
 19 that, according to standard economics, if developers paid lower service fees, then they would have  
 20 had incentives to compete by investing in improving their apps. However, Dr. Singer's pass-  
 21 through model does not account for whether reduced service fees would have led developers to  
 22 reinvest in their own products, not pass on the reduction to consumers.

23 *Second*, real-world data shows that Dr. Singer's pass-through rate formula is not reliable.  
 24 Dr. Singer's formula predicts that lower service fees *always* lead to lower prices. However, real  
 25 world data from the class period show that when Google reduces its service fees to some  
 26 developers, those developers *almost never* reduce their prices. Dr. Singer's pass-through rate  
 27

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28 <sup>1</sup> All references to "Ex." are exhibits to the concurrently-filed declaration of Justin P. Raphael.

1 formula thus “substitutes mathematical assumptions for actual, readily-obtainable information.”  
 2 *Laumann v. NHL*, 117 F. Supp. 3d 299, 315–16 (S.D.N.Y. 2015) (excluding expert testimony).

3 *Third*, Dr. Singer’s pass-through rate formula does not account for “focal point pricing,”  
 4 the widely used strategy of setting prices ending in “9” or “99,” which could explain why  
 5 developers might not have reduced prices if they were subject to lower service fees. This exact  
 6 shortcoming has led other courts in this District to exclude expert testimony, and this Court should  
 7 do the same. *E.g.*, *In re Apple iPhone Antitrust Litig.*, No. 11-cv-6714-YGR, 2022 WL 1284104,  
 8 at \*8 (N.D. Cal. Mar. 29, 2022); *In re Lithium Ion Batteries Antitrust Litig.*, No. 13-MD-2420  
 9 YGR, 2018 WL 1156797, at \*3 (N.D. Cal. Mar. 5, 2018).

10 *Fourth*, Dr. Singer’s formula depends on a premise that he admits he cannot substantiate.  
 11 Even though his pass-through formula is derived from a model of demand in which all apps in  
 12 each Play Store category are substitutes, at deposition Dr. Singer disclaimed any opinion that all  
 13 apps in each Play Store category actually are substitutes. Ex. 1, Singer Dep. at 158:14–16. That  
 14 leaves Dr. Singer unable to opine that a necessary condition for his formula is met.

15 *Finally*, Dr. Singer’s pass-through formula reflects undisclosed tests. Dr. Singer chose his  
 16 formula from several others reflecting differently structured demand curves. Dr. Singer tested  
 17 those formulas, but Consumer Plaintiffs did not disclose the results, so Google cannot test Dr.  
 18 Singer’s opinion that his formula best fits the structure of demand for apps. That is prejudicial  
 19 because Dr. Singer himself testified that pass-through depends on the structure of demand.

20 Dr. Singer offers an alternative opinion that all consumers suffered antitrust impact  
 21 because, in the but-for world, Google would have provided a more generous Play Points loyalty  
 22 program. This opinion, too, is unreliable because it reflects assumption rather than analysis. Most  
 23 consumers did not sign up for the Play Points Program and many of those who did earn Play  
 24 Points never used them. Dr. Singer, however, admits that he has no model to determine which  
 25 consumers would have signed up for and used Play Points in the but-for world. Rather, he calls it  
 26 a “fair assumption” that all consumers would have done so. That is not a reliable method of  
 27 common proof of antitrust impact.

28 The Court should exclude Dr. Singer’s testimony from class certification proceedings.

## BACKGROUND

2 Consumer Plaintiffs' theory of antitrust impact is that they would have paid lower prices  
3 for apps, subscriptions, and IAPs in the but-for world. This theory proceeds in two steps: (1) if  
4 Google had not engaged in allegedly anticompetitive conduct, then Google would have faced more  
5 competition and responded by lowering service fees, and (2) developers subject to lower service  
6 fees would have charged less for apps, subscriptions, and IAPs. *See* Consumer Second Am.  
7 Compl. ¶ 208, ECF No. 241. Dr. Singer purports to have a model for each step.

8        **Service Fee Rate Model.** Dr. Singer’s method for calculating the service fee rates that  
9 Google would have charged in a more competitive market consists of a series of mathematical  
10 equations. One of the inputs into those equations is the average pass-through rate that Dr. Singer  
11 has calculated. *See Ex. 2, Singer Rep. ¶ 125; Ex. 1, Singer Dep at 337:4–19.* This means that if a  
12 developer would not have passed through a reduced service fee, then Google would not have  
13 reduced its service fee. The but-for service fee rate would thus be the same as the real-world rate,  
14 meaning that Google would not have overcharged that developer. *See Ex. 3, Burtis Rep. ¶ 335.*

15 **Pass-Through Rate Model.** Dr. Singer’s method for calculating pass-through rates  
16 consists of mere arithmetic. Google organizes apps into categories for purposes of cataloging  
17 them in the Play Store. Those categories do not reflect any economic analysis of substitution.  
18 Developers can choose the categories when they submit their apps. Ex. 1, Singer Dep. at 90:3–6.  
19 Dr. Singer nevertheless attributes decisive economic significance to developers’ category choices.  
20 He opines that a developer will pass through a change in service fees at a rate equal to 100 minus  
21 the percentage of transactions in the app’s category accounted for by that app (Ex. 2, Singer Rep. ¶  
22 239), or: **100% – [Number of App’s Transactions / Number of Transactions of all Apps in  
23 Same Category].** Ex. 1, Singer Dep. at 131:5–132:2. Thus, for example, if an app in the Health  
24 category has 2% of transactions, then it will change prices by 98% of any change in service fees.

25 This formula guarantees pass-through for virtually all apps. As Dr. Singer admitted, his  
26 formula always “predicts” pass-through so long as an app does not have 100% of transactions in a  
27 given category, which no app does. Ex. 1, Singer Dep. at 181:23–183:7. Dr. Singer’s formula  
28 also predicts what he calls “very strange results”: an app’s pass-through rate, and thus its prices,

1 will change week to week or month to month as the app's share of transactions in its category  
2 moves up or down based on consumers' buying habits. *Id.* at 134:3–9.

8       **Play Points.** Dr. Singer offers an alternative opinion related to Google Play Points, a  
9 “loyalty points program” that Dr. Singer calls a “subsidy” for transactions in the Play Store. Ex. 2,  
10 Singer Rep. ¶ 245. Less than [REDACTED] of U.S. consumers participated in the Play Points Program  
11 and only [REDACTED] of U.S. consumers redeemed Play Points. Ex. 3, Burtis Rep. ¶ 358; Ex. 4, Singer  
12 Reply Rep. ¶ 98. According to Dr. Singer, Google offered a total amount of Play Points  
13 equivalent to an average of [REDACTED] per transaction in the real world, but would have offered Play  
14 Points equivalent to an average of [REDACTED] per transaction (or [REDACTED]) in the but-for world. Ex. 2,  
15 Singer Rep. at 122, Table 10. However, Dr. Singer has not developed a model to determine which  
16 consumers would have signed up for or redeemed Play Points in the but-for world. Ex. 1, Singer  
17 Dep. at 295:5–20, 296:6–19, 297:8–21.

## LEGAL STANDARD

19 Plaintiffs have the burden to prove that Dr. Singer’s testimony is admissible. *Bourjaily v.*  
20 *United States*, 483 U.S. 171, 175–76 (1987); *DSU Med. Corp. v. JMS Co.*, 296 F. Supp. 2d 1140,  
21 1146–47 (N.D. Cal. 2003). Under Rule of Evidence 702, at class certification this court acts as a  
22 “gatekeeper” to ensure that expert testimony is reliable. *Daubert v. Merrell Dow Pharm., Inc.*,  
23 509 U.S. 579, 589 (1993); *Ellis v. Costco Wholesale Corp.*, 657 F.3d 970, 982 (9th Cir. 2011).

24       First, the Court must ensure that Dr. Singer’s testimony is “the product of reliable  
25 principles and methods.” Fed. R. Evid. 702(c). This Court has explained that this requires  
26 assessing whether Dr. Singer has used “a generally accepted method for determining antitrust  
27 impact . . .” *In re Capacitors Antitrust Litig.* (No. III), No. 17-md-02801-JD, 2018 WL 5980139,  
28 at \*6 (N.D. Cal. Nov. 14, 2018) (Donato, J.).

1       Second, the Court must scrutinize “what basis [Dr. Singer] has” for his opinions. *Daubert*  
2       *v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1316 (9th Cir. 1995). The Court must ensure that Dr.  
3       Singer’s methodology is “based on sufficient facts or data” and “that he has “reliably applied the  
4       principles and methods to the facts of the case.” Fed. R. Evid. 702(b), (d); *United States v.*  
5       *Hermanek*, 289 F.3d 1076, 1093 (9th Cir. 2002) (citation omitted). This standard “connotes more  
6       than subjective belief or unsupported speculation.” *Daubert*, 509 U.S. at 590–91. “[N]othing in  
7       either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence  
8       that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that  
9       there is simply too great an analytical gap between the data and the opinion proffered.” *Gen. Elec.*  
10      *Co. v. Joiner*, 522 U.S. 136, 146 (1997).

## ARGUMENT

## 12 | I. DR. SINGER'S PASS-THROUGH FORMULA IS NOT RELIABLE.

**A. Dr. Singer's Pass-Through Formula Is Not Generally Accepted and Contradicts His Own View of Accepted Economics.**

14 Dr. Singer's pass-through rate formula does not reflect a generally accepted economic  
15 method for calculating whether, and how much, firms pass on costs structured like Google's  
16 service fees. Dr. Singer (1) does not use the generally accepted economic pricing model set forth  
17 in his own report and (2) does not account for the standard economic prediction (also in his report)  
18 that developers would have incentives to use savings on service fees to invest in their apps.

19 A “pass-through rate[]” is “the ratio of the dollar change in a developer’s profit-  
20 maximizing price resulting from a one-dollar change in marginal cost.” Ex. 2, Singer Rep. ¶ 239;  
21 Ex. 1, Singer Dep. at 103:18–104:12. In Paragraph 225 of his report, Dr. Singer provides the  
22 model “that’s generally accepted in economics” for how an increase in service fees would affect a  
23 developer’s price. Ex. 1, Singer Dep. at 105:8–106:3, 107:23–108:2; Ex. 2, Singer Rep. ¶ 225.  
24 This model reflects an important difference between what economists call “per-unit” costs and *ad*  
25 *valorem* costs. “Per unit” costs are a dollar amount per transaction. Google’s service fees are *ad*  
26 *valorem* costs: a percentage of the price charged. Ex. 1, Singer Dep. at 104:13–20.

According to the generally accepted economic model that Dr. Singer sets forth in his

1 report, an economist calculating how changes in a service fee will affect how each developer sets  
 2 prices must have information on each developer's marginal costs, if any. This is because,  
 3 according to the model, if changes in *ad valorem* costs would affect a developer's prices, any  
 4 effect would be proportional to the developer's other, per-unit marginal costs. *See* Ex. 2, Singer  
 5 Rep. ¶ 225 & n.495; Ex. 1, Singer Dep. at 105:8–106:3, 107:23–109:14. Specifically, the effect of  
 6 a service fee on the costs that affect a developer's price is modeled using the expression  $C / (1 - t)$ ,  
 7 where  $C$  are the developer's marginal costs and  $t$  is the service fee rate. Ex. 2, Singer Rep. ¶ 225.  
 8 Thus, each developer's marginal costs are an input into determining how the service fee rate will  
 9 affect how a developer sets prices. Ex. 1, Singer Dep. at 108:17–25.

10 The generally accepted principle that service fees' effects on prices depend on developers'  
 11 marginal costs means that those effects will vary from developer to developer because, as Dr.  
 12 Singer concedes, "the marginal cost to a developer of supplying an additional in-app purchase  
 13 vary [sic] from developer to developer." Ex. 1, Singer Dep. at 95:15–18. Indeed, Dr. Singer  
 14 concedes that if a developer's cost of producing an additional in-app purchase is zero, then "prices  
 15 would not adjust" if a developer paid a lower service fee, *id.* at 109:15–110:3, *i.e.*, there would be  
 16 no pass-through and no injury to consumers from a transaction with that developer. This is not  
 17 hypothetical: Dr. Singer relies on an article in his report stating that the "replication cost of digital  
 18 goods is zero." *Id.* at 95:22–98:19; Ex. 5, Avi Goldfarb & Catherine Tucker, *Digital Economics*,  
 19 57 J. Econ. Lit. 3, 12 (2019) (DX 335); *see also* Ex. 3, Burtis Rep. ¶¶ 142–143.

20 Dr. Singer did not calculate pass-through rates using the generally accepted economic  
 21 model—set forth in his own report—that *ad valorem* costs affect prices proportional to other  
 22 marginal costs. Ex. 1, Singer Dep. at 382:6–15. Dr. Singer candidly admitted that he did not use  
 23 the standard economic model "because it's—it's difficult to—to estimate the change in marginal  
 24 cost from the developer's perspective." *Id.* at 129:10–17. Indeed, Dr. Singer testified that a each  
 25 developer's marginal costs are "a variable that might be impossible to observe." *Id.* at 196:12–24.  
 26 Dr. Singer thus has not estimated *any* developer's marginal costs other than service fees. *Id.* at  
 27 90:20–91:2, 91:22–92:7. As a result, Dr. Singer lacks what his own report identifies as a  
 28 necessary input for calculating any effect of Google's service fees on developer's prices.

1 To evade that problem, Dr. Singer used a formula set forth in Paragraph 239 of his report  
 2 that, as he admitted at deposition, does not do “anything [] to reflect the fact that the affect [sic.]  
 3 on the price will be proportional to other marginal costs.” Ex. 1, Singer Dep. 124:18–127:13; *see*  
 4 *also id.* at 186:6–18. Dr. Singer borrowed that formula from a 2013 article which expressly states  
 5 that its formulas are designed to calculate how a “*per-unit*” cost, not an *ad valorem* cost, affects  
 6 prices. *Id.* at 116:14–118:3, 123:3–11; *see* Ex. 2, Singer Rep. at 111 n.516 (citing Nathan Miller,  
 7 Marc Remer & Gloria Sheu, *Using Cost Pass-Through to Calibrate Demand*, 118 Econ. Ltrs. 452  
 8 (2013) (DX 336)). Dr. Singer admitted that this pass-through formula “doesn’t actually depend on  
 9 what the marginal cost of the developer is.” Ex. 1, Singer Dep. at 91:3–8. In fact, Dr. Singer  
 10 testified that “the beauty” of his pass-through formula is that “we don’t need to estimate the  
 11 marginal costs in order to get the pass-through rate,” *id.* at 190:20–192:3, and that he “went with”  
 12 it “because I didn’t need to estimate the marginal costs of the developer.” *Id.* at 195:20–196:24.

13 Thus, as Dr. Singer testified, in his formula, “pass-through is a function of the  
 14 concentration” of an app’s category, “not of the cost” borne by the developer. *Id.* at 197:13–18. A  
 15 pricing model that does not depend on costs contradicts fundamental economics. After all, Dr.  
 16 Singer opines that “[o]ne of the most universal principles of economics is that prices depend on  
 17 costs.” Ex. 2, Singer Rep. ¶ 223. Thus, Dr. Singer has never used his formula to calculate pass-  
 18 through in any other case and could not identify any published paper that has done so. Ex. 1,  
 19 Singer Dep. at 151:8–152:2. Even the Developer Plaintiffs’ expert, who is adverse to Google,  
 20 testified that Dr. Singer’s formula reflects “complete fictions” and “defies common sense.” Ex. 6,  
 21 Williams Dep. at 322:20–323:5.

22 Dr. Singer also does not account for the principle that “standard economics would give  
 23 developers an incentive to respond to lower service fees by reducing prices and improving  
 24 quality.” Ex. 1, Singer Dep. at 53:24–54:3. Dr. Singer’s report states: “Standard economics  
 25 shows that competition drives firms to make competitive investments in product quality to keep  
 26 pace with rivals.” Ex. 2, Singer Rep. ¶ 233. But Dr. Singer admitted that his pass-through model  
 27 “doesn’t measure whether any developer would actually invest, or how much they would invest, in  
 28 improving the quality of their app in the but-for world.” Ex. 1, Singer Dep. at 56:14–57:5. Dr.

1 Singer therefore has no basis to opine that any developer, let alone all developers, would have  
 2 passed on savings from reduced service fees instead of investing them in improving app quality.

3       Ultimately, the pass-through formula that Dr. Singer revealingly calls “deceptively  
 4 straightforward,” Ex. 4, Singer Reply Rep. ¶ 68, proves far too much. The Supreme Court has  
 5 recognized that pass-through is not straightforward at all. *See Illinois Brick Co. v. Illinois*, 431  
 6 U.S. 720, 742 (1977) (noting the “difficulties that have been encountered” with “statistical  
 7 techniques used to estimate” pass-through). Dr. Singer’s logic is that service fees are  
 8 “economically analogous to a tax on developers” and “[e]lementary economics shows how taxes  
 9 are passed on to buyers,” Ex. 2, Singer Rep. ¶ 244, but the Supreme Court has rejected  
 10 “simplifying assumptions” that “overcharges” are “equivalent to an excise tax.” *Illinois Brick*,  
 11 431 U.S. at 741 & n.25. “[I]n the real economic world rather than an economist’s hypothetical  
 12 model, the latter’s drastic simplifications generally must be abandoned.” *Id.* at 742 (internal  
 13 quotation marks omitted). Just so here. The Court should exclude Dr. Singer’s opinions based on  
 14 a pricing model that has nothing to do with costs and reduces complex pricing for thousands of  
 15 different developers to calculating each app’s proportion of transactions in a category.

16       **B. Dr. Singer’s Pass-Through Rate Formula Ignores Actual Data.**

17       Dr. Singer’s use of a formula that does not account for basic economics results in “simply  
 18 too great an analytical gap between the data and the opinion proffered.” *Joiner*, 522 U.S. at 146.  
 19 “[A] key question to be answered in determining whether a theory or technique is scientific  
 20 knowledge that will assist the trier of fact [is] whether it can be (and has been) tested,” and “the  
 21 court ordinarily should consider the known or potential rate of error.” *Daubert*, 509 U.S. at 593–  
 22 94. Dr. Singer, however, has not tested his formula using data reflecting how developers set  
 23 prices when Google actually reduced service fees during the class period. In that respect, Dr.  
 24 Singer departed from the practice he “typically” uses of “regressing retail price changes on  
 25 wholesale price changes.” Ex. 1, Singer Dep. at 134:25–135:6.

26       Google reduced service fees for many transactions in 2018, 2021 and 2022. Ex. 4, Singer  
 27 Reply Rep. ¶ 9. Dr. Singer’s formula predicts that *every* developer would pass on reduced service  
 28 fees by reducing prices. Ex. 1, Singer Dep. at 89:19–23. However, an analysis of data in the real

1 world shows that developers in the data set only reduced prices for about █ of products subject  
 2 to service fee reductions. *See* Ex. 3, Burtis Rep. at 103, Fig. 13. An analysis of other data by the  
 3 Developer Plaintiffs' expert shows that developers only reduced prices for about █ of products  
 4 subject to service fee reductions. *Id.* at 101 n.348; *see also* Ex. 6, Williams Dep. at 312:21-314:2.

5 Thus, the pass-through that Dr. Singer predicts for *all* apps in fact occurred for almost none  
 6 of them. Indeed, several of the Developer Plaintiff class representatives state in sworn discovery  
 7 responses that they "never adjusted the price of ]their] apps or in-app products in response to  
 8 changes in Google's service fees." Ex. 7, Pl. Rescue Pets' Suppl. Resp. to Def.'s Interrog. No. 18;  
 9 Ex. 8, Pl. LittleHoots' Suppl. Resp. to Def.'s Interrog. No. 18; Ex. 9, Pl. Pure Sweat Basketball's  
 10 Suppl. Resp. to Def.'s Interrog. No. 18. (Dr. Singer did not rely on any developer's testimony.  
 11 Ex. 1, Singer Dep. at 237:18-22.) Moreover, numerous other developers also offer apps,  
 12 subscriptions, and IAPs at the same price on Google Play as on platforms where they pay either  
 13 lower service fees or no service fees at all, Ex. 1, Singer Dep. at 224:8-24, 229:22-230:11; Ex. 3,  
 14 Burtis Rep. ¶ 169, undermining Dr. Singer's logic that lower fees always mean lower prices.

15 Dr. Singer gets nowhere by suggesting that developers may not have reduced their prices  
 16 because they cannot "steer" users to platforms other than Google Play using in-app  
 17 communications. Ex. 4, Singer Reply Rep. ¶ 100. Dr. Singer testified that his pass-through  
 18 formula does not depend on steering. Ex. 1, Singer Dep. at 242:15-22. Indeed, his formula relies  
 19 entirely on shares of transactions in categories of apps in the Play Store. Dr. Singer also testified  
 20 that he "would expect pass-through regardless of the anti-steering restrictions." Ex. 1, Singer Dep.  
 21 at 242:23-244:3. Moreover, Dr. Singer has not conducted any empirical analysis of any inability  
 22 to steer on real-world pass-through rates, *id.* at 239:2-13, 240:2-241:1, 246:3-12, or even  
 23 analyzed any developer's returns on investment from steering in-app or otherwise. *Id.* at 74:23-  
 24 76:9. Thus, Dr. Singer's steering explanation for the "gap between the data and the opinion  
 25 proffered," *Joiner*, 522 U.S. at 146, reflects speculation that is "inherently unreliable." *Ollier v.*  
 26 *Sweetwater Union High Sch. Dist.*, 768 F.3d 843, 861 (9th Cir. 2014).

27 Evidence that virtually no developers that paid lower service fees reduced prices to  
 28 consumers is proof that Dr. Singer's pass-through formula is not reliable. "Expert testimony is

1 useful as a guide to interpreting market facts, but it is not a substitute for them.” *Brooke Grp. Ltd.*  
 2 *v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 242 (1993).

3 **C. Dr. Singer’s Pass-Through Rate Formula Does Not Account for Focal Point**  
 4 **Pricing.**

5 A third reason why Dr. Singer’s pass-through rate formula is not reliable is that it “does  
 6 not adequately account for the effects of focal point pricing, and therefore fails to yield reliable  
 7 conclusions.” *In re Lithium Ion Batteries Antitrust Litig.*, 2018 WL 1156797 at \*3. Focal point  
 8 pricing is a “well-established concept in economics” in which firms set prices ending in “99,”  
 9 which consumers can perceive as significantly more attractive than prices just one cent higher.  
 10 Ex. 1, Singer Dep. at 197:19–198:4; Ex. 3, Burtis Rep. ¶ 149. Developers have widely adopted  
 11 this strategy: [REDACTED] of U.S. consumers’ retail app transactions involved prices ending in ’99, Ex. 3,  
 12 Burtis Rep. ¶ 149, and over [REDACTED] developers used prices ending in “99” during the class period.  
 13 *Id.* at 111, Table 9. *Cf. Apple iPhone Antitrust Litig.*, 2022 WL 1284104, at \*8 (“with respect to  
 14 focal-point pricing, overwhelming evidence suggests that developers would choose to price their  
 15 apps at focal points ending in 99 cents.”).

16 Dr. Singer admits that “focal point pricing is an important consideration here.” Ex. 1,  
 17 Singer Dep. at 202:2–7. Indeed, focal point pricing is one reason why developers may not have  
 18 reduced prices if they paid lower service fees. Developers that rely on focal point pricing would  
 19 not reduce prices in response to lower service fees “if the reduction from one” focal price point “to  
 20 the next would be so large that the developer would lose profits.” Ex. 3, Burtis Rep. ¶ 150.

21 Dr. Singer’s pass-through formula does not account for focal-point pricing at all. Ex. 1,  
 22 Singer Dep. at 205:19–206:8. Given this oversight, it is not surprising that Dr. Singer’s model  
 23 produces results that are flatly inconsistent with focal-point pricing. According to Dr. Singer’s  
 24 model, developers that paid lower service fee rates would have reduced prices by less than a  
 25 dollar, *i.e.*, above the next lowest focal point. Ex. 4, Singer Reply Rep. ¶ 28. And according to the  
 26 model, more than 99% of developers would have abandoned focal point pricing if they were  
 27 subject to lower service fees. *See* Ex. 3, Burtis Rep. ¶ 315, and Table 9.

28 Judge Gonzales Rogers recently excluded testimony that Apple’s allegedly

1 supracompetitive service fees for its App Store resulted in higher prices for all consumers of apps  
 2 in the Store because the expert’s “model does not provide a reliable method for determining but-  
 3 for pricing in the presence of focal pricing.” *Apple iPhone Antitrust Litig.*, 2022 WL 1284104, at  
 4 \*8. Dr. Singer’s pass-through rate model does not do so, either, and likewise is inadmissible.

5 **D. Dr. Singer’s Pass-Through Rate Formula Relies on the Unsubstantiated**  
**Assumption that All Apps in a Google Play Category Are Substitutes.**

6 Dr. Singer’s pass-through rate formula also is not reliable because he admits the premise it  
 7 depends on is not true. *E.g., Boyar v. Korean Air Lines Co.*, 954 F. Supp. 4, 8–9 (D.D.C. 1996)  
 8 (“[A] number of [] cases exclude expert testimony because the factual assumption upon which it  
 9 was based was faulty and plainly contradicted by the evidence.”). Dr. Singer’s category-share  
 10 formula reflects a demand structure (“logit”) whose fundamental feature is that “all goods in the  
 11 market where demand is being measured are substitutes.” Ex. 1, Singer Dep. 158:6–13; Ex. 2,  
 12 Singer Rep. ¶ 224; Ex. 4, Singer Reply Rep. ¶¶ 75–77; *see also* Ex. 3, Burtis Rep. ¶ 308; *id.* at 107  
 13 n.363. But Dr. Singer disclaimed any opinion that “all apps in each Google Play app category are  
 14 substitutes,” Ex. 1, Singer Dep. at 158:14–159:14; *see also* *id.* at 159:21–160:1. He testified that  
 15 some apps in each category could be complements rather than substitutes. *Id.* at 159:15–18.<sup>2</sup> Dr.  
 16 Singer’s failure to opine that a necessary premise of his pass-through formula exists renders his  
 17 formula unreliable. *See Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 594 &  
 18 n.19 (1986) (affirming exclusion of expert testimony based on assumptions that were “implausible  
 19 and inconsistent with record evidence”).

20 **E. Dr. Singer’s Pass-Through Formula Reflects Undisclosed Analyses.**

21 Finally, Dr. Singer’s pass-through formula should be excluded because it is based on  
 22

24 <sup>2</sup> Indeed, it is obvious that not all apps in each category are substitutes. *See* Ex. 3, Burtis Rep. ¶¶  
 25 158, 308. Because developers choose a category for their app when they list it in Google Play, Ex.  
 26 1, Singer Dep. at 90:3–6, the categories cannot reflect any relationship between prices and demand  
 27 for apps in the category. As a result, the Business category includes both “package tracking” and  
 28 “email management” apps; the Finance category includes “ATM finders” and apps related to  
 insurance; and the Productivity category includes both calendar apps and calculator apps. *See*  
 Google Play, “Choose a category and tags for your app or game,” Google Support,  
<https://support.google.com/googleplay/android-developer/answer/9859673>.

1 undisclosed analyses. Dr. Singer concedes that “the pass-through rate is going to depend on the  
 2 shape of the demand curve.” Ex. 1, Singer Dep. at 152:3–6. Dr. Singer’s pass-through formula  
 3 assumes a “logit” demand curve. *See* Ex. 2, Singer Rep. ¶ 236. Although the article on which Dr.  
 4 Singer relied includes formulas that assume other demand structures, Dr. Singer decided that logit  
 5 was the “best model” after testing two others. Ex. 1, Singer Dep. at 152:7–153:6. However, Dr.  
 6 Singer did not disclose those tests in his reports, *id.* at 152:24–153:12, 174:17–25, so Google has  
 7 no basis to assess whether his pass-through formula best reflects the structure of real-world  
 8 demand. Consumer Plaintiffs’ failure to disclose analyses necessary to test Dr. Singer’s pass-  
 9 through formula requires excluding his testimony based on the formula. *See* Standing Order for  
 10 Discovery in Civil Cases ¶ 17 (“FRCP 26(a)(2)(B) requires disclosure of all opinions, bases,  
 11 reasons and other information considered by an expert.”)<sup>3</sup>

12 **II. DR. SINGER’S FORMULA FOR CALCULATING COMPETITIVE SERVICE**  
**FEES IS NOT RELIABLE.**

13 Dr. Singer’s model for showing that Google’s service fees would have been lower for all  
 14 developers in the first place depends on using his unreliable pass-through rate formula as an input  
 15 in calculating service fee rates. *See* Ex. 2, Singer Rep. ¶ 264 (explaining variables in but-for  
 16 service fee calculation, including pass-through). Because Dr. Singer’s pass-through rate formula  
 17 is unreliable, calculating service fees based on that formula will be unreliable as well.

18 Dr. Singer’s formula for calculating service fee rates in a more competitive market also  
 19 yields absurd results. *E.g., In re Air Cargo Shipping Servs. Antitrust Litig.*, No. 06-MD-1175 (JG)  
 20 (VVP), 2014 WL 7882100, at \*57–59 (E.D.N.Y. Oct. 15, 2014), *report and recommendation*  
 21 *adopted*, 2015 WL 5093503 (E.D.N.Y. July 10, 2015) (excluding regression yielding “absurd”  
 22 results). Dr. Singer predicts that, in the but-for world, Google would have charged service fees of  
 23 10% for apps in the Entertainment app category and 9.7% for apps in the Music and Audio  
 24 categories. *See* Ex. 2, Singer Rep. at 134, Table 14. However, Dr. Singer’s own calculations

26 <sup>3</sup> Dr. Singer did not test the formula for AIDS demand to see if that structure of demand best fit the  
 27 demand for apps. Ex. 1, Singer Dep. at 153:13–154:8. That is problematic because Dr. Singer  
 28 does not know whether he would even be able to calculate any pass-through rates using the AIDS  
 formula if demand for apps reflected AIDS demand. *Id.* at 154:9–21.

1 estimate that Google's marginal costs are [REDACTED] of current revenues. *Id.* ¶ 212. A formula that  
 2 predicts service fees insufficient to cover Google's marginal costs is unreliable. *See In re Apple*  
 3 *iPhone Antitrust Litig.*, 2022 WL 1284104, at \*5 ("It is not logical that a but-for world would  
 4 generate market [service fee] rates which do not anticipate any profit in the foreseeable future.").

5 **III. DR. SINGER'S METHOD FOR CALCULATING ALLEGED INDIVIDUAL**  
**CONSUMER IMPACT IS NOT RELIABLE.**

6 Dr. Singer has not calculated the service fee that any individual developer would have been  
 7 subject to in a more competitive market or how much any individual developer would have  
 8 reduced prices to consumers. Dr. Singer has instead calculated *average* service fee and pass-  
 9 through rates for each developer and posited methods for generating individual rates based on  
 10 those averages. Ex. 2, Singer Rep. ¶¶ 239, 263. This method is unreliable because it uses average  
 11 pass-through rates for all apps in the same category. *Cf. In re Graphics Processing Units Antitrust*  
 12 *Litig.*, 253 F.R.D. at 494 ("Sometimes the prices used by economists are averages of a number of  
 13 different prices charged to different customers or for somewhat different products. Using such  
 14 averages can lead to serious analytical problems.") Dr. Singer effectively assumes that all apps in  
 15 the same category would reduce prices by the same proportion. Dr. Singer has no support for this  
 16 assumption, which cannot be squared with his concession that not all apps in a category are  
 17 substitutes.

18 **IV. DR. SINGER'S MODEL REGARDING PLAY POINTS IS NOT A RELIABLE**  
**METHOD OF COMMON PROOF OF ANTITRUST IMPACT.**

19 Dr. Singer proffers an alternative opinion related to Google's Play Points program, a  
 20 "loyalty points program" which Dr. Singer calls a "subsidy" for transactions in the Play Store. Ex.  
 21 2, Singer Rep. ¶ 245. Less than [REDACTED] of U.S. consumers participated in the Play Points  
 22 Program and only [REDACTED] of U.S. consumers redeemed Play Points. Ex. 3, Burtis Rep. ¶ 358; Ex. 4,  
 23 Singer Reply Rep. ¶ 98. According to Dr. Singer, Google offered Play Points equivalent to [REDACTED]  
 24 per transaction in the real world, but "the Play Points program would be expanded to be worth an  
 25 average of [REDACTED] per transaction, or approximately [REDACTED] of consumer spend (in the  
 26 competitive but-for world)." Ex. 2, Singer Rep. ¶ 253. Dr. Singer claims that if Google had  
 27 offered Play Points equivalent on average to approximately [REDACTED] of a consumer's  
 28

1 transaction, then “the [P]lay [P]oints system would be embraced across the class just as the way  
 2 that the points system in the AMEX marketplace is embraced across American Express users.”  
 3 Ex. 1, Singer Dep. at 296:6–19, 297:8–21.

4 This is not a reliable method for proving antitrust impact on all consumers. Dr. Singer  
 5 conceded that “very few people availed themselves” of the Play Points program in the actual  
 6 world, and that “only some of the people that signed up for the [P]lay [P]oints program used their  
 7 [P]lay [P]oints.” Ex. 1, Singer Dep. at 288:11–16, 289:17–23. However, Dr. Singer admitted that  
 8 he has not “identified any model to determine which users would have signed up for [P]lay  
 9 [P]oints in the but-for world,” *id.* at 295:5–20, and has no model “that can tell the Court and the  
 10 jury in this case which of the members of the putative class would have signed up for [P]lay  
 11 [P]oints and who would have used them.” *Id.* at 297:8–21; *see also id.* at 296:6–19.

12 Thus, when asked whether his opinion is that “every member of the putative class would  
 13 have signed up for the [P]lay [P]oints program and used [P]lay [P]oints,” Dr. Singer merely  
 14 characterized this as a “fair assumption.” Ex. 1, Singer Dep. at 298:22–299:10. Dr. Singer has not  
 15 justified that assumption in his reports. He has not explained why an average of [REDACTED] in benefits  
 16 would have been sufficient to motivate every member of the putative class to sign up and use Play  
 17 Points—including the over [REDACTED] class members ([REDACTED]) who spent less than [REDACTED] during the  
 18 class period or the over [REDACTED] class members ([REDACTED]) who only made one purchase during the  
 19 class period for whom the amount of benefits would be very small. Ex. 3, Burtis Rep. at 35, Table  
 20 3, Exhibit 24. Dr. Singer’s reports do not analyze that issue. Nor do his reports include any  
 21 showing that such benefits are in any way comparable in value to the loyalty points offered to  
 22 American Express cardholders or any analysis of the redemption rates of those points.

23 Dr. Singer has simply assumed the conclusion that all consumers would have signed up  
 24 and used Play Points. Such “*ipse dixit* of the expert” is not a reliable opinion on common antitrust  
 25 impact. *Joiner*, 522 U.S. at 146.

26 **CONCLUSION**

27 The Court should exclude the expert opinions of Dr. Hal J. Singer.

28

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